

Effect of Proposed Changes to Rod and Reel Subsistence Harvest Regulations in the Lower Yukon / Kuskokwim Area: Surveys and Analysis

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Alaska Department of Fish and Game

Division of Sport Fish



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Weights and measures (metric)		General		Mathematics, statistics, fisheries	
centimeter	cm	All commonly accepted abbreviations.	e.g., Mr., Mrs., a.m., p.m., etc.	alternate hypothesis	H _A
deciliter	dL	All commonly accepted professional titles.	e.g., Dr., Ph.D., R.N., etc.	base of natural logarithm	e
gram	g	and	&	catch per unit effort	CPUE
hectare	ha	at	@	coefficient of variation	CV
kilogram	kg	Compass directions:		common test statistics	F, t, χ^2 , etc.
kilometer	km			confidence interval	C.I.
liter	L			correlation coefficient	R (multiple)
meter	m	east	E	correlation coefficient	r (simple)
metric ton	mt	north	N	covariance	cov
milliliter	ml	south	S	degree (angular or temperature)	°
millimeter	mm	west	W	degrees of freedom	df
		Copyright	©	divided by	÷ or / (in equations)
		Corporate suffixes:		equals	=
		Company	Co.	expected value	E
		Corporation	Corp.	fork length	FL
		Incorporated	Inc.	greater than	>
		Limited	Ltd.	greater than or equal to	≥
		et alii (and other people)	et al.	harvest per unit effort	HPUE
		et cetera (and so forth)	etc.	less than	<
		exempli gratia (for example)	e.g.,	less than or equal to	≤
		id est (that is)	i.e.,	logarithm (natural)	ln
		latitude or longitude	lat. or long.	logarithm (base 10)	log
		monetary symbols (U.S.)	\$, ¢	logarithm (specify base)	log ₂ , etc.
		months (tables and figures): first three letters	Jan,...,Dec	mid-eye-to-fork	MEF
		number (before a number)	# (e.g., #10)	minute (angular)	'
		pounds (after a number)	# (e.g., 10#)	multiplied by	x
		registered trademark	®	not significant	NS
		trademark	™	null hypothesis	H ₀
		United States (adjective)	U.S.	percent	%
		United States of America (noun)	USA	probability	P
		U.S. state and District of Columbia abbreviations	use two-letter abbreviations (e.g., AK, DC)	probability of a type I error (rejection of the null hypothesis when true)	α
				probability of a type II error (acceptance of the null hypothesis when false)	β
				second (angular)	"
				standard deviation	SD
				standard error	SE
				standard length	SL
				total length	TL
				variance	Var
Weights and measures (English)					
cubic feet per second	ft ³ /s				
foot	ft				
gallon	gal				
inch	in				
mile	mi				
ounce	oz				
pound	lb				
quart	qt				
yard	yd				
Spell out acre and ton.					
Time and temperature					
day	d				
degrees Celsius	°C				
degrees Fahrenheit	°F				
hour (spell out for 24-hour clock)	h				
minute	min				
second	s				
Spell out year, month, and week.					
Physics and chemistry					
all atomic symbols					
alternating current	AC				
ampere	A				
calorie	cal				
direct current	DC				
hertz	Hz				
horsepower	hp				
hydrogen ion activity	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

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**EFFECT OF PROPOSED CHANGES TO ROD AND REEL SUBSISTENCE
HARVEST REGULATIONS IN THE LOWER YUKON / KUSKOKWIM
AREA: SURVEYS AND ANALYSIS**

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EXECUTIVE SUMMARY

The primary research questions with regard to potential adoption of a rod and reel subsistence regulation in the lower Yukon/Kuskokwim (Y/K) area have to do with possible impacts on use levels, harvest and license revenues. Each of these three impact areas could be affected by responses to the changed regulation by any of three populations of licensed fishers: non-local residents, local residents, and nonresidents. This report characterizes stated responses of licensed fishers relating to visitation to and fishery resource use in the Y/K area, and revenue from sport fish license sales and king salmon stamp sales. In addition, fishery characteristics, opinions regarding level of support for the proposal, and fishing motivation are examined. The goal of this research is to understand the motives and opportunities that might change the attractiveness of one set of fishing circumstances for another. By characterizing different segments of licensed fishers and their attitudes, their responses to changes in regulations may be estimated, thereby providing information to the Alaska Board of Fisheries in their decision-making.

The overall largest level of support (49.3%) for the proposed regulation change was reported by non-local residents. There is likely to be only slight if any increases in non-local resident use and harvest on lower Y/K waters. This is probably related to the expense and time involved in traveling from an origin such as Anchorage to fish the remote Y/K waters. A large body of recreational travel literature supports the general rule that distance and transportation costs have a large impact on visitation behavior. A regulation change allowing for rod and reel subsistence take on a more accessible fishery, such as the lower Kenai River, could significantly change Anchorage resident angling behavior; however, economic theory and the results from this study indicate that such a regulation change in the more distant (and costly to travel to) lower Y/K area is unlikely to have much of an impact on visitation behavior of non-local residents.

Rod and reel use by local residents for subsistence angling is already a common practice with a majority (71.1%) of licensed fishers reporting such use. About 39.9% of local anglers were in favor of the proposed regulation change. Nearly an equal percentage (37.1%) of lower Y/K respondents were opposed to the proposed regulation change. Taken in aggregate, there would not be substantial changes in the use levels of local residents. For the vast majority (over 85% for all species) of lower Y/K respondents there would be no increase in harvest. Fifteen percent of local respondents said they would take additional fish under the changed regulation – as many as several hundreds more of a specific species. As a result, the average reported increase of fish harvest per household of local respondents is substantial for some species – for example, an increase in 9.1 king salmon per household. It is possible, therefore, that there could be significant harvest impacts on some species in some of the more heavily used waters resulting from a minority of local fishers.

Given that there is likely to be only limited changes in use on these waters by local and non-local residents, it is unlikely that nonresidents will find much if any actual change in their angling experience. This is at odds with the perception of nonresidents expressed in the survey. About 44% of nonresidents were opposed to the proposed regulation change, and over a third said they would take fewer trips in the future to the lower Y/K area if the regulation was in effect. An analysis of the open-ended comments made by nonresidents who felt that their fishing would be negatively affected by the change showed 58% felt they would suffer from crowding, low fish populations, or generally reduced quality of fishing. The local economic impact of any non-

resident angler response to the proposed regulation change is unclear. If one third of the non-resident anglers fishing the lower Y/K area were to visit the area less, there would likely be a significant local economic impact on lower Y/K area guide businesses. Any impacts would be lessened on a statewide level to the extent that nonresidents shifted their trips to other parts of the state rather than not visiting the state at all.

With regard to license fees, the local residents would be the least likely to continue to buy licenses if the regulation was approved. About 44% of these respondents indicated they would no longer buy a fishing license. The total number of sport fish licenses sold in the lower Y/K in 1998 to local residents was only 1,736, meaning there would be 765 fewer sport fish licenses sold - this is a very small portion of total Alaska license sales. Only 36.3% of those local residents who purchased a king salmon stamp in 1998 indicated they would continue to buy a stamp under the changed regulation. With regard to non-local residents, 95% of respondents would continue to buy a license, and 97.9% would continue to buy a king salmon stamp. Unless the only waters an individual fishes happens to be in the remote Y/K area, they would still need a license to sport fish in other areas of Alaska. Of the total population of licensed resident anglers in 1996 (180,747), only 0.4% or 761 non-local resident anglers fished in lower Y/K. The worst case scenario is that all of these individuals would not buy licenses. In the short term, there could be a large loss in expenditures from reduced non-resident fishing trips to the lower Y/K area.

This research shows common fishing motivations for both non-local and local residents - for example, fishing to catch a fish and eat it or catch a fish and eat it later (*achievement, nourishment*), experience wilderness solitude (*appreciative*), and be with family and friends (*affiliative*). Stated differences in reasons for fishing are observed when “hot button” terms are used which have political connotations in Alaska, such as the terms “recreation”, “sport” and “subsistence”. While specific interest groups can derive different meanings of fishing, this research shows there are many common reasons for angling among Alaskan resident groups.

1.0 INTRODUCTION

This report provides information on potential biological and social consequences associated with implementing rod and reel fishing as a subsistence harvest method during open water in the lower Yukon/Kuskokwim (Y/K) area (Figure 1; proposal ACR 26). In considering action relative to the proposal, the Alaska Board of Fisheries requested information at the October 1998 meeting in Wasilla to aid in understanding the implications of implementing rod and reel as an open water subsistence fishing method. The goal of this research is to understand the motives and opportunities of licensed¹ fishers that might change the attractiveness of one set of fishing circumstances for another. By characterizing different segments of licensed fishers and their attitudes, their responses to changes in regulations may be estimated, thereby providing information to the Alaska Board of Fisheries in their decision-making.

Specific objectives of this research were to estimate changes in: 1) fishing trips to the lower Y/K area, 2) fish harvest (shifts in species or magnitude), and 3) revenue from sport fish license and king salmon stamp sales. The method employed to provide these estimates was contingent behavior modeling. In addition, this report characterizes stated responses relating to fishery characteristics, fishing motivation, and opinions regarding level of support for the proposal. This study does not project changes in the trend of harvest and use from the non-licensed fisher component.

2.0 METHODS

2.1 CONTINGENT BEHAVIOR METHODOLOGY

Contingent behavior questions ask respondents to predict their future behavior contingent on the circumstances described in a given question. There is a very large scientific literature that fits within this definition, including the use of polls to predict voting behavior and market research to predict consumer purchases. Polling and market research shows that survey questions can fairly accurately predict some kinds of future behavior. Contingent behavior data has been used in the resource economics literature in a variety of ways, usually in conjunction with travel cost or contingent valuation models. Duffield et al. (1990) used contingent behavior to model changes in visitation rates in response to changes in instream flow. Validation of contingent behavior in the recreational literature is limited. In this study respondents were asked how their visitation patterns, harvest and decision to purchase a license or king salmon stamp would change if rod and reel subsistence fishing were implemented in the lower Y/K area.

2.2 DATA COLLECTION

Surveys were designed cooperatively by Bioeconomics, Inc. and Alaska Department of Fish and Game (ADF&G) personnel. Anglers holding 1998 Alaska sport fishing licenses were sampled using three distinct surveys: a primary mail survey, a secondary phone survey, and a limited

¹ The license file consists of all classes including low income. In addition, those holding PID (permanent identification or lifetime) cards for residents age 60 or older were sampled.

Figure 1. The lower Yukon/Kuskokwim area (shaded).

follow-up phone survey of non-respondents to the mail survey. ADF&G personnel administered the surveys. The mail survey followed a modified Dillman methodology (Dillman 1978). The initial mailing occurred on July 8-9, postcard reminders were mailed on August 6, and a second mailing of surveys to nonrespondents occurred on August 23-24, 1999. Phone surveys occurred in August and September, 1999.

The mail survey consisted of similar survey instruments tailored to the specific situations and experiences of each of three populations.

- 1) A census of 1,795 residents of the lower Y/K area who purchased licenses and obtained Permanent Identification Cards.
- 2) A census of 728 non-resident US anglers who purchased licenses in the lower Y/K area. This population was problematic in that it is very large yet only a small proportion likely fished in the lower Y/K area. In an effort to sidestep this problem of low participation rates, the population was narrowed to those nonresidents who purchased licenses in the lower Y/K area. The assumption made was that nonresidents who actually purchased their licenses in the lower Y/K area are more likely to have fished there than those who purchased their licenses outside of the area. The assumption was also made that those nonresidents who purchased licenses in the lower Y/K area were not significantly different from those who purchased licenses elsewhere and fished the lower Y/K area.
- 3) A random sample of 255 resident license holders residing in Anchorage². Anchorage was chosen to represent non-local residents because it is the closest urban center to the lower Y/K area. Additionally, in the 1996 Statewide Harvest Survey the largest group of non-local residents reporting fishing trips in the lower Y/K were from the Anchorage area (Al Howe, personal communication, Sport Fish Division, Anchorage).

The total number of surveys mailed was 2,778. Appendix A contains the complete survey instruments. The mail surveys were divided into three sections. Section I asked respondents about their fishing habits and fishing experience in the lower Y/K. Section II asked about respondent reactions to the proposed rod and reel regulation change, and Section III asked a series of questions about respondent demographics.

Two unique phone surveys were used to randomly sample two populations: guide businesses and Anchorage sport fish license holders. A total of 21 guide businesses who operate in the lower Y/K area, and 26 Anchorage sport fish license holders were contacted (Appendix A). Owners of guide businesses were surveyed about what impacts they felt the proposed rod and reel regulation changes would have on their businesses in the affected region. Sample sizes for the phone surveys were small, and were designed to be loosely structured conversations on the rod and reel regulation issue. Conversations can elicit additional insight to the understanding of responses to mail surveys. A maximum of six attempts at contacting individuals was standard procedure, varying time and day of call; those ultimately contacted were a subset of the initial draw.

Because of the relatively low response rates to the mail survey for the non-local and local samples, a limited non-response phone survey was conducted of a random sample of non-

² This represents 0.4% of the 67,955 sport fish license holders residing in Anchorage in 1998. The sample size of 255 was constrained by budgetary reasons to the minimum number of respondents required to provide estimates, assuming a 25-30% response rate.

respondents. In the non-response calling (conducted September 15 and 16, 1999) 13 Anchorage area and 10 lower Y/K area non-respondents were called. Non-respondents were queried about their subsistence and sport fishing participation in fisheries in the lower Y/K area and why they had not responded to the mail survey.

2.3 ANALYSIS

The data collected from the rod and reel subsistence surveys were primarily analyzed using standard univariate statistical procedures including measures of distribution and central tendency. Univariate statistics from certain questions were combined with baseline data on license sales and angler behavior in the lower Y/K to arrive at potential impacts of the proposed regulation changes on license sales and fishing pressure.

2.4 MAIL SURVEY RESPONSE RATES

The response rates for the mail survey were 24.9% for the local sample, 30.7% for the non-local sample, and 46.3% for the non-resident sample (Table 1).

Table 1.-Sample disposition and response rates for rod and reel regulation mail survey, 1999.			
Statistic	Non-local sample	Local sample	Non-resident sample
Total surveys mailed	255	1,795	728
Total undeliverable surveys	40	58	74
Total deliverable surveys	215	1,737	654
Total returned surveys	66	433	303
Response rate	30.7%	24.9%	46.3%

3.0 RESULTS

Results from the surveys follows the structure of the survey instruments. Section 3.1 presents the results from the mail survey responses, and Sections 3.2 and 3.3 present additional insights gained from analysis of the phone and non-respondent survey responses.

3.1 MAIL SURVEY

In the following tables response statistics are presented for each sample and for each question asked. A summary of opinions in letters included with the returned survey by respondent sample is shown in Appendix B.

Days per year rod and reel fishing are similar between resident samples. However, nonresidents report fishing approximately twice the number of days as residents (Table 2). The average subsistence harvest is significantly higher for residents of the lower Y/K area than for the Anchorage area survey respondents (Table 2).

Table 3 shows the percentage of respondents in each of the three samples who rated each of eight reasons for fishing as either a '4' or a '5' on a scale of importance (the scale was a 1 to 5 scale

with 1 being not important and 5 being very important). Both resident groups rated fishing motivation categories similarly. For example, the category ‘catch a few fish to eat’ was rated important by the majority of non-local (74.9%) and local (72.9%) respondents; and, the category ‘be with family and friends’ was rated important by the majority of non-local (87.1%) and local (78.5%) respondents. There is one exception – the category labeled ‘recreation’. Nearly all (90.6%) of non-local respondents rated ‘recreation’ as a fishing motivation, compared to 49.1% of local area respondents.

Table 2.-General fishing characteristics of populations sampled, 1999.			
Statistic	Non-local sample	Local sample	Non-resident sample
Average years rod and reel fishing	28.0	19.9	33.0
Days per year rod and reel fishing	19.5	16.1	32.4
Average subsistence harvest in the lower Y/K area per household in numbers of fish by species in most recent year in which respondent subsistence fished (zero if respondent does not subsistence fish)			
Kings	0.7	23.3	--
Silvers	2.1	11.9	--
Chums	0.1	25.0	--
Pinks	0.4	2.4	--
Reds	7.7	11.1	--
Other fish	4.5	40.1	--

The strongest differences are between the resident and non-resident samples. Non-resident anglers differed from resident anglers in several ways. Nonresidents ranked ‘catching enough fish to preserve and eat later’ as relatively unimportant while the resident samples both rated this reason as relatively important. Approximately 50% of non-resident anglers reported that catching trophy sized fish was an important reason while less than 15% of resident anglers felt the same. A larger proportion of non-residents than resident anglers listed ‘catch and release fishing’ as an important reason for fishing.

Table 3.-Respondent rating of the importance of alternative reasons for fishing in the lower Y/K area, by population sampled, 1999.

Fishing Motivation	Percent who rated experience as either "4" or "5" on a 1 to 5 scale of importance ^a .		
	Non-local sample	Local sample	Non-resident sample
Catch and release fish	30.6	37.9	67.3
Catch a few fish to eat	74.9	72.9	49.9
Catch enough fish to preserve and eat later	63.1	73.2	18.6
Experience wilderness solitude	63.5	72.2	90.7
Be with family or friends	87.1	78.5	81.5
The challenge	42.9	38.4	73.0
Catch trophy-size fish	12.5	13.7	50.2
Recreation	90.6	49.1	85.1
Total returned surveys	66	433	303

^a 1 is rated as not important, 5 is rated as very important.

Table 4 reports responses to several questions of anglers from outside the lower Y/K area about their fishing habits in the lower Y/K. Only 5.6% of respondents from the non-local sample reported previously fishing in the lower Y/K area. Since the sample of non-resident anglers was drawn from anglers who had bought their licenses in the lower Y/K, this question was not asked of the non-resident sample. Nonresidents reported having taken an average of 4.1 previous trips to Alaska to sport fish, and 3.4 trips specifically to the lower Y/K area.

Table 4.-Respondent histories of sportfishing in Alaska and the lower Y/K area, 1999.

Statistic	Non-local sample	Non-resident sample
Percent who have previously sportfished in lower Y/K	5.6	--
Average previous trips to Alaska to sportfish	--	4.1
Average previous trips to lower Y/K area	--	3.4

Table 5 shows the percent of respondents in each sample who reported that they had sportfished lower Y/K area waters. Either none or only one of the 66 non-local respondents reported fishing on two-thirds of the listed waters. For the local sample, the Kuskokwim, Kwethluk and Kisaralik rivers were the most frequently fished of the listed waters. The Kuskokwim was the only river

that over one-third of local anglers report having sportfished. Among the non-resident anglers who had bought licenses in the lower Y/K area, the Aniak River was the most frequently fished and the Kuskokwim River was the second most often cited.

Only one Anchorage respondent reported having subsistence fished in the lower Y/K area. Detail on these responses is therefore not presented.

Table 5.-Percent of respondents in each sample who reported having sportfished specific waters in the lower Y/K area, 1999.^a			
Fishing site	Non-local sample	Local sample	Non-resident sample
Aniak	0.0	19.4	52.8
Goodnews	1.5	6.5	5.0
Kanektok	0.0	12.0	12.2
Kisaralik	0.0	24.9	9.9
Kuskokwim	6.0	39.2	30.4
Kwethluk	1.5	28.9	7.3
Holitna	1.5	11.5	8.3
Yukon	3.0	21.7	8.6
Other water	3.0	21.0	17.2
Total returned surveys	66	433	303

^a The percentages shown are the percent of the total sample, blank responses were counted as 'no' responses.

Non-local and local samples were asked what the primary purpose of fishing with a rod and reel was for them. A higher proportion of non-local respondents said they primarily use their rod and reel for sport (51.7%) than did the local respondents (29.0%; Table 6). Overall, 71.1% of local respondents reported that they at some time used rod and reel gear for subsistence (26.8% who primarily use it for subsistence, plus 44.3% who use rod and reel for both sport and subsistence) (Table 6). For non-local respondents, 48.3% report that they used rod and reel gear for subsistence, either primarily or in conjunction with sport use. From open ended comments on the survey, some Anchorage respondents consider that when they catch a fish, preserve and eat it later, they are subsistence fishing. Use of rod and reel for subsistence appears to be very widespread. It may be that a large proportion of respondents do not recognize the current legal difference between sport and subsistence.

Table 6.-Reported primary purpose of fishing with a rod and reel by resident sample, 1999.		
Response	Percent of non-local respondents	Percent of local respondents
Primarily use rod and reel for sport	51.7	29.0
Primarily use rod and reel for subsistence	3.2	26.8
Use rod and reel for both sport and subsistence	45.1	44.3
Total returned surveys	66	433

Table 7 shows the percentage of each sample aware of the proposed regulation change. Additionally, this table shows respondent's level of support or opposition to the proposal. Local respondents reported the highest level of awareness about the possible regulation change (23.8%). A fraction (7.4%) of non-resident anglers also reported being aware of the proposed change, as did 12.1% of non-local respondents (Table 7).

Nonresidents reported the highest level of opposition to the regulation change (44.5% marked a "1" or "2" on a scale of 1-5 with one being "strongly oppose" and five being "strongly support"). Only 21.3% of non-local respondents reported this level of opposition ("1" or "2" response), while 37.1% of local respondents marked a "1" or a "2" (Table 7). The overall largest level of support for the change was reported by the non-local sample with 49.3% responding with "4" or "5". Among the non-local respondents who supported the proposal, a majority (60%) indicated that a person should be able to use alternative methods of subsistence take including rod and reel; 10% indicated that a rod and reel was a cheaper way to fish; and 10% thought that rod and reel use would reduce the take of fish. Another 20% had various other reasons for supporting the change.

Local respondents were closely split on support (39.9%) and opposition (37.1%) to the regulation change (Table 7). Among the group of local residents who rated their level of support for the change as "1" "strongly oppose", the most frequently cited reasons were: "over-harvesting of certain species or runs could occur", "rod and reel is not an efficient means of taking the numbers of fish needed for subsistence", and "non-rural Alaskans will crowd to the area and impact local fishing." Among the group of local residents who rated their level of support for the change as "5" "strongly support", the most frequently cited reasons were: "fishers could be more selective and waste fewer fish", "subsistence fishers should be able to use all available means", and "would bring current practices into line with laws".

Table 7.-Responses to survey questions on support for the proposed rod and reel regulation change in the lower Y/K area, 1999.			
Statistic	Non-local sample	Local sample	Non-resident sample
Percent of sample who had heard of the proposed regulation change.	12.1	23.8	7.4
Distribution of responses to question on the level of support for the proposed regulation change.			
Strongly Oppose (1)	14.7	31.4	32.8
(2)	6.6	5.7	11.7
(3)	29.5	22.8	31.5
(4)	16.5	8.5	11.2
Strongly Support (5)	32.8	31.4	12.9

The majority (88.7%) of non-local respondents reported that their fishing in the lower Y/K would not change if the proposed rod and reel regulation were to be implemented (Table 8). At most, four of the 66 respondents said they would fish more in the lower Y/K after the regulation change. One individual in this sample (1.5%) reported that he would fish less after the regulation change. The net percent in potential change is quite small (1.5 – 4.6%) per fishing site.

In most listed waters a larger percentage of local respondents said they would fish less under the proposed regulation change. In all cases, less than 10% of local respondents said that they would either increase or decrease their angling on the listed waters.

Table 8.-Stated changes in rod and reel fishing in the lower Y/K area by resident sample.				
Percent who said their rod and reel fishing in the lower Y/K <u>would</u> change under the proposed regulation change. Statistic / Fishing Site	Non-local sample		Local sample	
	11.3		21.8	
	% fish less	% fish more	% fish less	% fish more
Aniak	1.5	6.1	9.2	5.3
Goodnews	1.5	3.0	8.1	1.6
Kanektok	1.5	4.5	8.1	2.3
Kisaralik	1.5	3.0	9.0	3.7
Kuskokwim	1.5	4.5	7.9	8.8
Kwethluk	1.5	3.0	8.8	3.9
Holitna	1.5	4.5	9.5	3.0
Yukon	1.5	4.5	9.0	7.2
Other water	1.5	3.0	7.9	3.5
Total returned surveys	66		433	

Note: percentages are the percent of respondents in the total sample.

Table 9 reports stated changes in fish harvest with adoption of the rod and reel regulation. While the average increase in harvests reported by local licensed anglers in Table 9 is between 1.4 to 9.1 fish per household, this increase is heavily dominated by a relatively small number of anglers reporting that they would take an additional 100, 200, or even 500 fish under the changed regulation. Table 9 also shows that for the vast majority (over 85% for all species) of lower Y/K anglers there would be no increase in harvest of the listed species.

Table 10 reports the responses of non-resident anglers to questions regarding their angler experiences in the lower Y/K area and their expectation of how the proposed regulation change would affect their future angling. Roughly one-half of non-resident respondents reported having encountered subsistence fishers on their trips to the lower Y/K, and about 20% reported having experienced crowded conditions on a previous lower Y/K angling trip. Among the non-resident

Table 9.-Stated increase in harvest per household by local residents of the lower Y/K area, under the proposed change in rod and reel regulation.							
Species	Percent who said they would have a "0" increase	Percent who said they would have a 100+ fish increase (number of respondents)	Average increase in household harvest (full sample)	Average increase in household harvest (excluding 500+ increase responses)	Average increase in household harvest (excluding 100+ increase responses)	Percent of increase attributable to those who expect to have a 100+ fish increase	Full Sample size
King salmon	85.8	3.0 (10)	9.1	6.1	1.9	79	338
Silver salmon	85.8	2.1 (7)	5.6	5.6	2.5	55	332
Chum salmon	88.8	2.8 (9)	7.0	7.0	2.2	68	320
Pink salmon	95.8	0.3 (1)	1.4	1.4	0.7	47	307
Red salmon	92.1	0.9 (3)	3.8	3.8	2.2	43	316
Other fish	87.8	0.9 (3)	4.9	4.9	3.0	38	317

sample, 47.8% had specific plans for a future trip to the lower Y/K area, and 40.3% said that the proposed regulation change would affect the number of trips they took to the area in the future. Of this 40.3% of non-resident respondents, 9.8% said they would visit more after the regulation change, and 90.2% said they would visit less. The vast majority of non-resident respondents reported that the regulation change would lead to either a negative change or no change in their fishing experience for the year (44.1% negative and 51.0% no change).

Table 10.-Non-resident perceptions of the impact of the proposed rod and reel regulation change for the lower Y/K area.	
Question / Statistic	Percent “yes”
Total returned surveys	303
Have you encountered subsistence fishers on your previous trips to the lower Y/K area?	50.5
On any of your previous fishing trips to the lower Y/K area have you experienced crowded fishing conditions?	19.0
Do you have any specific plans at present to travel to the lower Y/K area to sport fish?	47.8
If the proposed regulation is adopted, do you expect that this would affect your decision to travel to the lower Y/K area as a sport fishing destination in the future?	40.3
If YES, would you take more or less trips?	
Percent “more trips”	9.8
Percent “less trips”	90.2
If the rod and reel subsistence proposal goes into effect, what effect do you generally feel this regulation will have on your fishing experience for the year?	
Percent positive	4.9
Percent negative	44.1
Percent no change	51.0
Reasons given for the change having a “negative” impact in open-ended responses ^a	Percent
Would increase crowding	26.7
Would deplete fish populations	21.9
Would negatively impact fishing experience	9.5
Fear of increased pressure from urban anglers	5.7
Opposed to subsistence fishing	2.9
Other non-specific reason given	29.5

^a note: 25.5% of those non-resident residents who said the regulation change would have a negative impact did not give a reason for this assertion.

Of the nonresidents who gave a reason as to why the regulation change would have a negative impact on their fishing, 26.7% felt the change would lead to crowding problems, 21.9% felt fish stocks would be depleted, 9.5% felt their fishing experience would generally suffer, and 41.9% gave assorted other reasons. It appears that the majority of concern among nonresidents centers on the issues of crowding, fish stocks, and impacts on the fishing experience.

Table 11 details responses by non-local and local respondents to questions on their fishing license purchases if the rod and reel regulation was changed. For the non-local respondents, the vast majority (95%) said that they would continue to buy a sport fish license if the proposal was adopted. Of those Anchorage area respondents who reported buying a 1998 king salmon stamp, 97.9% said that they would continue to buy the stamp under the changed regulation. Small sample sizes preclude estimation of lost license revenue in this population. Unless the only waters an individual fishes happens to be in the remote Y/K area, they would still need a license to sport fish in other areas of Alaska. Of the total population of licensed resident anglers in 1996 (180,747), only 0.4% or 761 non-local resident anglers fished in lower Y/K waters (Statewide Harvest Survey, *unpub.*). The worst case scenario is that all of these individuals would not buy licenses. For local respondents, 55.9% said they would still buy a license under the changed regulation, and 36.3% of 1998 king salmon stamp holders said they would still buy the stamp; the potential loss in revenue from this population is about \$14,250.

A large majority of non-local respondents (88.8%) said the proposal would not change their fishing experience for the year. Of the respondents, 6.4% said the proposal would positively affect and 4.7% said it would negatively effect their angling experience. Among the lower Y/K respondents, 61.4% said the proposal would lead to no change, 13.5% a positive change and 25.0% a negative change in their fishing experience.

Table 12 shows the demographic characteristics of the three sampled populations. Both the local and the non-resident samples reported a much higher percentage of male respondents than did the non-local sample. Among the two sample groups that were asked a question on ethnicity, the local sample had a much higher percentage of Alaska natives (57.8%) than did the non-local sample (6.3%). The reported household income levels shown in Table 12 shows large differences between the sample populations. While 37.1% of local respondents reported household income less than \$20,000, only 3% of the non-local sample and 2.8% of the non-resident sample reported income below \$20,000. At the other end of the income range, 34.5% of nonresidents reported income over \$125,000 while only 12.3% of the non-local sample and 3.5% of the local sample reported this high level of household income.

Table 11.-Resident responses to the proposed rod and reel regulation change for the lower Y/K area.		
Question / statistic	Percent of respondents answering “yes”	
	Non-local sample	Local sample
Total returned surveys	66	433
If the proposed regulation is adopted, do you expect that you would continue to buy a sport fish license?	95.0	55.9
In 1998 did you buy a king salmon stamp?	75.3	25.1
IF YES, If the proposed regulation is adopted, would you continue to buy a king salmon stamp?	97.9	36.3
If the rod and reel subsistence proposal goes into effect, what effect do you generally feel this regulation will have on your fishing experience for the year?		
Percent positive	6.4	13.5
Percent negative	4.7	25.0
Percent no change	88.8	61.4

Table 12.-Demographic characteristics of respondents, by population sampled, 1999.			
Statistic	Non-local sample	Local sample	Non-resident sample
Average years lived in Y/K area	-- ^a	26.6	-- ^a
Average age	43.0	-- ^a	52.6
Percent male	66.7	86.2	91.5
Percent Alaska native	6.3	57.8	-- ^a
Average years of formal schooling	14.2	13.5	15.6
Average number of people in household	3.1	4.2	2.6
1998 household income			
Less than \$20,000	3.0%	37.1%	2.8%
\$20,000 to \$39,000	12.3%	20.0%	9.3%
\$40,000 to \$69,000	27.7%	20.2%	23.5%
\$70,000 to \$79,000	18.5%	6.5%	9.3%
\$80,000 to \$124,000	26.2%	12.7%	20.6%
Over \$125,000	12.3%	3.5%	34.5%

^a Questions not asked in the survey, due to either non-applicability of the question to the sample or space limitations of the particular survey.

3.2 PHONE SURVEY

Among guides almost half (42.9%) of those surveyed had heard of the proposal to allow rod and reel for subsistence fishing (Table 13). Eight of the 21 respondents believed that the proposal would cause resident anglers to change their behavior in a significant way that would negatively affect the experience for non-resident clients. Thirteen guides believed the proposal would have “no impact” and no guides believed the proposal would have a positive impact on non-resident experiences. Those who anticipated an impact predicted a range from small to large (one guide mentioned a possible loss of the operation). The majority of guides (66.7%) did not believe there would be crowding problems on rivers. Of the seven guides who said they believed there would be crowding problems, five named the Kanektok. Overall, on the question of the proposed regulation change, nine of 21 guides opposed the proposal, six were neutral and six favored it. With regard to their reasons for their opinions about the proposal, some commented that they believed there would be greater stress upon the resource, others noted that they didn’t see enforcement of the current regulations and feared abuse of the resource. In general, perceptions of the guides regarding the effects of the proposal were similar to those of the nonresidents expressed in mail surveys.

Table 13.-Summary results, phone survey of guide businesses operating in the lower Y/K area, 1999.	
Percent who had heard about proposal	42.9
Percent who felt change would negatively impact non-resident anglers	38.1
Percent who felt there would be crowding problems on specific rivers.	33.3
Percent who expected business impacts from the change	38.0
Percent who felt the change could necessitate harvest limits.	28.5
Percent favoring proposal	28.5
Percent opposing proposal	42.8
Percent neutral on proposal	28.6

In a phone survey of 26 Anchorage residents, a majority (61.5%) had never sport fished in the lower Y/K area (Table 14). A large majority (84.6%) of respondents had not heard of the proposal to allow rod and reel for subsistence fishing. In response to the question, “Would you choose to travel specifically to the lower Y/K area to fish rod and reel subsistence if the proposal was adopted?” only three respondents said “yes,” three said they were “not sure” and the remaining 20 said “no.” Of the five respondents answering the question “Do you expect that there would be a substantial increase in your total annual fish harvest in the lower Y/K area under the proposed regulation only one responded “yes” and the rest “no.” When asked whether they would take fewer trips to other locations so that they could fish more often in the lower Y/K area, three answered “unsure” and two said “no.” All responses to the question “Would you continue

to buy a sport fishing license?” were “yes”. Many respondents commented that they would not travel to the lower Y/K to fish rod and reel subsistence because of the distance. When asked if the respondent had any additional comments about the proposal, many had no comments, a few thought the proposal sounded good, a few were concerned about overcrowding and snagging. In general, responses to the phone survey were similar to the mail survey.

Table 14.-Summary results, phone survey of random draw of Anchorage license holders, 1999.	
Average years of fishing experience	26.9 years
Percent who had fished the lower Y/K area	38.4
Percent who had heard about proposal	16.0
Percent who said they would subsistence fish in the lower Y/K under the changed regulations	12.0
Percent who would continue to buy a sport fishing license	100.0
Percent of those who currently buy a king salmon stamp who would continue to do so	100.0
Percent who cited either distance or cost as the reason they would not travel to the lower Y/K area to rod and reel subsistence fish	61.9

3.3 NONRESPONSE SURVEY

The responses to the phone survey of non-respondents to the mail survey were generally consistent with the mail survey results. Only one of the Anchorage area non-respondents reported having fished in the lower Y/K area, and none of the Anchorage area anglers had ever subsistence fished in the lower Y/K area. Twelve of 13 Anchorage non-respondents contacted said they would not change their rod and reel fishing in the lower Y/K if the regulation change occurred (Table 15). In answer to the question of why they didn’t respond to the mail survey, nine (69.2%) did not remember receiving a survey, 15.4% either didn’t have time or did not feel like responding, one mailed it in, and one said he did not respond because he did not catch any fish this year.

Of the 10 local residents contacted in the non-response survey, 90% had subsistence fished in the lower Y/K and 20% reported having sport fished in the same area. Of the lower Y/K respondents, 60% said they would not expect their rod and reel fishing in the lower Y/K to change in response to adoption of the proposal, 30% said they might try rod and reel subsistence fishing, and one respondent (10%) said he would change his rod and reel fishing if bag limits were increased (Table 16). In answer to the question of why they didn’t respond to the mail survey, 40% said they didn’t receive a survey, 20% said they still have it and have not yet filled it out, 20% mailed it in, one individual lost it, and one said he did not respond because he did not catch any fish this year.

Table 15.-Summary results, nonresponse survey of non-local residents, 1999.	
Percent who had sport fished in lower Y/K	7.7
Percent who had subsistence fished in lower Y/K	0
Percent who said they would not expect their fishing to change with a change in regulation	92.3

Table 16.-Summary results, nonresponse survey of local residents, 1999.	
Percent who had sport fished in lower Y/K	20.0
Percent who had subsistence fished in lower Y/K	90.0
Percent who said they would not expect their fishing to change with a change in regulation	60.0

4.0 DISCUSSION

4.1 POTENTIAL CHANGES IN TRIPS AND HARVEST

Non-local resident angler -- It was questioned whether non-local residents would significantly increase their angling in the lower Y/K area following the regulation change. Increased use and harvest by non-local fishers might result in potential impacts on specific fish stocks. To travel from an area such as Anchorage to the lower Y/K to subsistence fish, and to transport the fish back to Anchorage would be an extremely expensive method of securing a subsistence supply of fish. A large body of recreational travel literature supports the general rule that distance and transportation costs have a very large impact on visitation behavior. Of the 180,747 licensed resident anglers in 1996, it is estimated that only 761 Alaskans residing outside of the lower Y/K area traveled to the lower Y/K to fish (Statewide Harvest Survey, *unpub.*) This statistic is consistent with the survey responses from Anchorage area anglers - a very small percentage of anglers from this population fished in the lower Y/K area. A regulation change allowing for rod and reel subsistence take on a more accessible fishery, such as the lower Kenai River, could significantly change Anchorage resident angling behavior.

Responses to this survey indicate that 88.7% of resident anglers residing outside of the lower Y/K feel that the rod and reel regulation change would not affect their fishing trips in the lower Y/K area for the year (see Table 8).

Local anglers -- Information collected during community baseline studies (Coffing 1992), indicated that a percentage of residents of the lower Y/K area already use rod and reel gear for subsistence harvest. It is possible that a regulation would, for a portion of this population, legalize a harvest method that is currently widely practiced. The majority (71.1%) of lower Y/K licensed respondents currently report using rod and reel gear to subsistence fish in the lower Y/K.

The majority (78.2%) of respondents residing in the lower Y/K area said that the regulation change would not affect their fishing. However, a small percentage of local anglers say they would harvest a large number of additional fish under the changed regulation (in some cases as many as 500 more of a specific species). While the fishing of the majority of local anglers would not be impacted by the proposed rod and reel regulation change, because of the actions anticipated by a minority of area residents, impacts on specific waters or species could possibly be significant. The extent of these water or species-specific impacts is uncertain.

Non-resident anglers -- Based on the hypothesis that the majority of non-local and local Y/K resident anglers would not change their behavior in response to a change in regulation, it was likewise not expected that non-resident anglers would notice significantly different angling conditions in the lower Y/K. However, if it was perceived that increased use and harvest levels would result in response to a regulation change, a concern was that non-resident visitation and use could decline.

The largest potential change in trips is reported by nonresidents - 36.4% of non-resident respondents said they would take less trips to the lower Y/K area as a result of the regulation change. Non-resident anglers who bought licenses in the lower Y/K area were the sampled population most opposed to the proposed regulation change. Forty-four percent of this sample said the proposed regulation change would affect their decision to travel to the lower Y/K area to sport fish in the future. This potential change in nonresident trips is also expected by guide businesses interviewed.

4.2 POTENTIAL CHANGES IN REVENUE

Non-local resident anglers -- The majority (95%) of Anchorage area anglers said they would still buy a sport fishing license if the regulation change occurred, and 97.9% of king salmon stamp holders from this population would continue to buy the stamp. Small sample sizes preclude estimation of lost license revenue in this population, however net decreases from non-local residents are limited. Unless the only waters an individual fishes happens to be in the remote Y/K area, they would still need a license to sport fish in other areas of Alaska. The worst case scenario is that the few non-local residents traveling to the lower Y/K to fish would not buy licenses.

Local anglers -- A research question was whether local license sales might decline significantly. Under the proposed regulation change, 55.9% of licensed local residents said they would continue to buy a sport fishing license. In 1998 there were 1,736 sport fishing licenses sold to residents of the lower Y/K area. Based on survey responses from this group, 765 fewer sport fish licenses and 278 fewer king salmon stamps would be sold to this population under the proposal to allow the use of rod and reel gear for subsistence fishing. The potential net decrease in license and king salmon stamp sales from lower Y/K residents is about \$14,250.

Non-resident anglers -- In the short term, there could be a large loss in expenditures from reduced non-resident fishing trips in the lower Y/K area. If one third of the non-resident anglers fishing the lower Y/K area were to visit the area less, there would likely be a significant economic impact on lower Y/K area guide businesses. Any impacts would be lessened on a statewide level to the extent that nonresidents shifted their trips to other parts of the state rather than not visiting the state at all.

4.3 PUBLIC OPINION

Non-local resident anglers -- The largest level of support for the proposed regulation change is from the non-local sample (49.3%). In analyzing open-ended comments to survey questions, among the group of Anchorage respondents who were supportive, the most frequently cited reason was “a person should be able to use alternative methods for subsistence”.

Local anglers -- There is a near even split of support (39.9%) and opposition (37.1%) from the local sample. We explored the diversity of opinion in the local sample by conducting cross tabulations with three possible explanatory variables: ethnicity (Alaska native status), stated fishing purpose (subsistence or sport), and recreation as a fishing motivation. The frequency of stated support and opposition to the proposed regulation change is independent of the frequency of ethnicity ($\chi^2=1.61$, $df=2$, $P=0.45$) and fishing purpose ($\chi^2=5.4$, $df=2$, $P=0.067$). Thus, Alaska native status and stated fishing purpose do not explain the diversity of opinion. However, opinion is not independent of recreation as a fishing motivation ($\chi^2=7.73$, $df=2$, $P=0.02$). There is more support for using rod and reel as a subsistence method from those anglers who value recreation as a fishing motivation (Figure 2) than from those who do not value recreation as a fishing motivation. In analyzing open-ended comments to survey questions, among the group of lower Y/K residents who were strongly supportive, the most frequently cited reasons were “fishers could be more selective and waste fewer fish”, “subsistence fishers should be able to use all available means”, and “would bring current practices into line with the law.”

Conversely, those to whom recreation is not an important motivation are not as supportive of using rod and reel for subsistence. In analyzing open-ended comments to survey questions, among the group of local residents who were strongly opposed, the most frequently cited reasons were “overharvesting of certain species or runs could occur”, “using rod and reel is not an efficient means of taking the numbers of fish needed for subsistence”, and “non-rural Alaskans will crowd to the area and impact local fishing”.

Non-resident anglers -- A substantial share (44.5%) of nonresidents are opposed to the proposed regulation change. In analysis of the open-ended comments made by nonresidents, 58% perceived that their fishing would be negatively effected due to crowding, low fish populations, or generally reduced quality of fishing.

4.4 FISHING MOTIVATION

Fishing motivations of various groups affect the type of benefits fishers seek. The degree to which benefits are received by fishers influences their level of fishing satisfaction (Pollack et al. 1994). This research shows common fishing motivations for both non-local and local residents: fishing to catch a fish and eat it, and, catch a fish, preserve it and eat it later (*achievement, nourishment*); experience wilderness solitude (*appreciative*); be with family and friends (*affiliative*), etc. Stated differences are observed when “hot button” terms are used which have political connotations, such as the terms “recreation”, “sport” and “subsistence”. While specific interest groups can derive different meanings of fishing, this research shows there are many common reasons for angling among Alaskan resident groups.

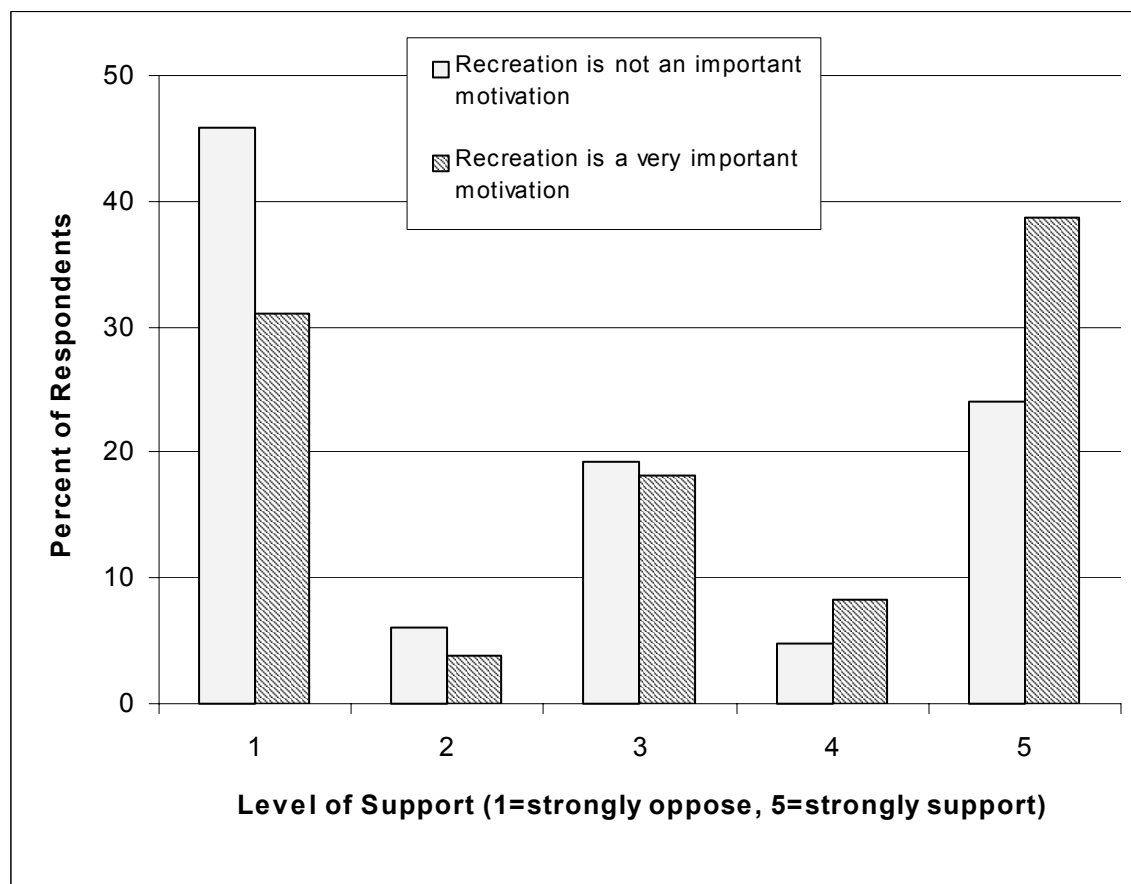


Figure 2.-Percent of local respondents indicating support or opposition for a regulation change in rod and reel subsistence fishing based on importance of recreation as a motive for fishing.

ACKNOWLEDGEMENTS

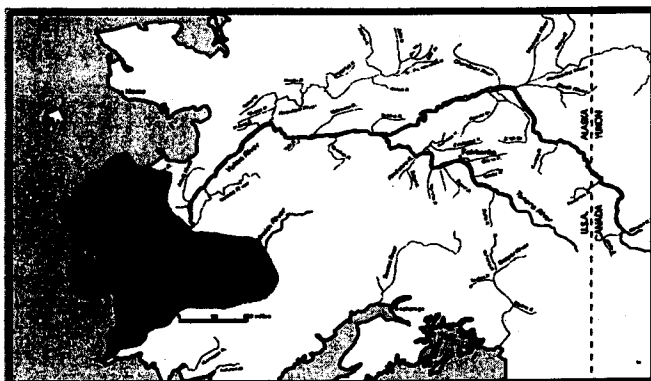
Technical review of the survey instruments was provided by Al Bingham, Al Howe and Bob Wolfe. Bob Walker developed programming to sample the populations and track responses. Research and Technical Services staff developed data entry screens and entered data. Thanks to Bob Wolfe for commenting on an earlier draft of the manuscript. Mike Wallendorf performed contingency table analyses. Sara Case is thanked for finalizing the report.

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APPENDIX A: SURVEY INSTRUMENTS AND CONTACT LETTERS

Survey of Rod & Reel Fishing in the Lower Yukon/Kuskokwim Area (shaded on map)



Alaska Department of Fish and Game
Division of Sport Fish

1999

The purposes of this survey are to collect information on rod and reel fishing in the lower Yukon and Kuskokwim area, and to obtain your opinions about a proposed change in state fishing regulations to allow subsistence fishing with rod and reel in the lower Yukon and Kuskokwim area. The study is being done by the Division of Sport Fisheries of the Alaska Department of Fish and Game. Findings will be presented to the Alaska Board of Fisheries in October, 1999. The survey should take about 15 minutes to fill out. Your participation is confidential-no names of participants will appear in any findings.

Section I. This section asks about your general fishing experiences, and for your opinions regarding your fishing experiences.

1. In general, how many years have you been fishing with rod and reel? ____ years
2. On average about how many days per year do you spend fishing with rod and reel? ____ days
3. Do you subsistence fish? (circle one) *Yes* *No*
 - a. If YES, what was the most recent year you subsistence fished?

 - b. In that calendar year, about what was your total (personal) subsistence harvest of fish for you and your household?
Total number of salmon harvested:
____ kings ____ silvers ____ chums ____ pinks ____ reds

Total number of fish other than salmon harvested _____

4. Please indicate how important (circle a number) each of the following are as a reason for you to go fishing where 1 = not important and 5 = very important.

Fishing Experience	Not Important		Very Important	
Catch and release fish	1	2	3	4 5
Catch a few fish to eat	1	2	3	4 5
Catch enough fish to preserve and eat later	1	2	3	4 5
Experience wilderness solitude	1	2	3	4 5
Be with family or friends	1	2	3	4 5
The challenge	1	2	3	4 5
Catch trophy-size fish	1	2	3	4 5
Recreation	1	2	3	4 5

5. Please indicate locations in the lower Yukon/Kuskokwim area that you fish with a rod and reel and the kind of fish you fish for. (The map on the back of the letter enclosed with this survey shows the location of specific waters).

Fishing Site	Fished?		Specific Kind of Salmon or Other Type of Fish
	Yes	No	
Aniak	—	—	
Goodnews	—	—	
Kanektok	—	—	
Kisaralik	—	—	
Kuskokwim	—	—	
Kwethluk	—	—	
Holitna	—	—	
Yukon	—	—	
Other _____	—	—	

6. In your opinion, is your fishing with rod and reel: (Circle One)
- primarily for sport;
 - primarily for subsistence;
 - for both sport and subsistence.

Please explain _____

Section II. This section asks your opinions about the proposed change in state fishing regulations.

The Alaska Board of Fisheries has received a proposal that would change state regulations to allow the use of rod and reel for subsistence fishing in the lower Yukon and Kuskokwim area during summer. Currently, state regulations prohibit this. One implication of the proposal is that it would allow any Alaska resident to fish for subsistence with rod and reel in the lower Yukon and Kuskokwim area. A sport fishing license or king salmon stamp would not be required to use rod and reel for subsistence fishing. Under state regulations, subsistence fishing means the taking of fish for customary and traditional uses by an Alaska resident with gill net, seine or fish wheel. Currently under state regulations, any Alaska resident may fish for subsistence in the Yukon and Kuskokwim area using a gill net, seine or fish wheel.

7. Prior to this survey, had you heard about the proposed regulation change that would allow rod and reel to be used for subsistence fishing during open water in the lower Yukon/ Kuskokwim area?
(circle one) *Yes No*
8. Please indicate your level of support for the proposed regulation change from 1 = strongly oppose to 5 = strongly support:
(circle one) *1 2 3 4 5*

Please explain: _____

-continued-

9. If the proposal were to pass, would you expect your fishing with a rod and reel in the lower Yukon/Kuskokwim to change?

(circle one) *Yes* *No*

- a. If **YES**: Where would you spend more or less time fishing and for what kind of fish?

Fishing Site	Fishing Time More	Less	Specific Kind of Salmon or Other Type of Fish
Aniak	—	—	
Goodnews	—	—	
Kanektok	—	—	
Kisaralik	—	—	
Kuskokwim	—	—	
Kwethluk	—	—	
Holitna	—	—	
Yukon	—	—	
Other _____	—	—	

10. If the proposal were to pass, please estimate how many additional fish your household is likely to harvest because of the change in regulation. (If the regulation is not likely to increase your household's harvests, please enter "0"):

King salmon _____
 Silver salmon _____
 Chum salmon _____
 Pink salmon _____
 Red salmon _____
 Fish other _____
 than salmon _____

11. If the proposed regulation is adopted, do you expect that you would continue to buy a sport fish license?

(circle one) *Yes* *No*

12. In 1998 did you buy a king salmon stamp?

(circle one) *Yes* *No*

- a. If **YES**: If the proposed regulation is adopted, would you continue to buy a king salmon stamp? (circle one) *Yes* *No*

13. If the rod and reel subsistence proposal goes into effect, what do you generally feel this regulation will have on your fishing experience for the year:

(circle one) *Positive* *Negative* *No Change*

Please explain your answer: _____

Section III. These last few questions will help compare respondents to the general population. All of your responses are completely confidential.

14. How many years have you lived in the lower Yukon/Kuskokwim area? _____ Years

15. Are you: ☐ male ☐ female

16. What is your cultural background? ☐ Alaska native ☐ Other

17. How many years of formal schooling (elementary, high school, college, voc. tech) have you attended? _____ years

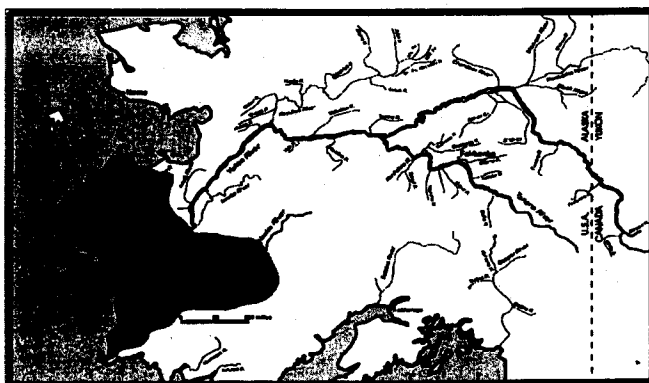
18. How many people are in your household? _____ people.

19. Please circle your household's income before taxes for 1998:

1. Less than \$20,000 4. \$70,000 to \$79,999
 2. \$20,000 to \$39,999 5. \$80,000 to \$124,999
 3. \$40,000 to \$69,999 6. Over \$125,000

Thanks very much for your help! Is there anything else you would like to tell us about the proposed regulation change or sport fishing in Alaska?

Survey of Rod & Reel Fishing in the Lower Yukon/Kuskokwim Area (shaded on map)



Alaska Department of Fish and Game
Division of Sport Fish

1999

The purposes of this survey are to collect information on rod and reel fishing in the lower Yukon and Kuskokwim area, and to obtain your opinions about a proposed change in state fishing regulations to allow subsistence fishing with rod and reel in the lower Yukon and Kuskokwim area. The study is being done by the Division of Sport Fisheries of the Alaska Department of Fish and Game. Findings will be presented to the Alaska Board of Fisheries in October, 1999. The survey should take about 15 minutes to fill out. Your participation is confidential-no names of participants will appear in any findings.

Section I. This section asks about your general fishing experiences, and for your opinions regarding your fishing experiences.

1. In general, how many years have you been fishing with rod and reel? ____ years
2. On average about how many days per year do you spend fishing with rod and reel? ____ days
3. Do you subsistence fish? (circle one) **Yes** **No**
 - a. If **YES**, what was the most recent year you subsistence fished?

 - b. In that calendar year, about what was your total (personal) subsistence harvest of fish for you and your household?

Total number of salmon harvested:

____ kings ____ silvers ____ chums ____ pinks ____ reds

Total number of fish other than salmon harvested _____

4. Please indicate how important (circle a number) each of the following are as a reason for you to go fishing where 1 = not important and 5 = very important.

Fishing Experience	Not Important				Very Important
Catch and release fish	1	2	3	4	5
Catch a few fish to eat	1	2	3	4	5
Catch enough fish to preserve and eat later	1	2	3	4	5
Experience wilderness solitude	1	2	3	4	5
Be with family or friends	1	2	3	4	5
The challenge	1	2	3	4	5
Catch trophy-size fish	1	2	3	4	5
Recreation	1	2	3	4	5

5. In your opinion, is your fishing with rod and reel: (circle one)

- a. primarily for sport;
b. primarily for subsistence;
c. for both sport and subsistence.

Please explain _____

6. Have you previously **sport fished** in the lower Yukon/Kuskokwim area? (see enclosed map) (circle one) **Yes No**

- a. If **YES**: please indicate locations in the lower Yukon/Kuskokwim area where you **sport fished** and the kind of fish you fish for:

Fishing Site	Fished? Yes No	Specific Kind of Salmon or Other Type of Fish
Aniak	— —	
Goodnews	— —	
Kanektok	— —	
Kisaralik	— —	
Kuskokwim	— —	
Kwethluk	— —	
Holitna	— —	
Yukon	— —	
Other _____	— —	

7. Have you previously **subsistence fished** in the lower Yukon/Kuskokwim area? (see enclosed map)

(circle one) **Yes No**

- a. If **YES**: please indicate locations in the lower Yukon/Kuskokwim area where you **subsistence fished** and the kind of fish you fish for:

Fishing Site	Fished? Yes No	Specific Kind of Salmon or Other Type of Fish
Aniak	— —	
Goodnews	— —	
Kanektok	— —	
Kisaralik	— —	
Kuskokwim	— —	
Kwethluk	— —	
Holitna	— —	
Yukon	— —	
Other _____	— —	

Section II. This section asks your opinions about the proposed change in state fishing regulations.

The Alaska Board of Fisheries has received a proposal that would change state regulations to allow the use of rod and reel for subsistence fishing in the lower Yukon and Kuskokwim area during summer. Currently, state regulations prohibit this. One implication of the proposal is that it would allow any Alaska resident to fish for subsistence with rod and reel in the lower Yukon and Kuskokwim area. A sport fishing license or king salmon stamp would not be required to use rod and reel for subsistence fishing. Under state regulations, subsistence fishing means the taking of fish for customary and traditional uses by an Alaska resident with gill net, seine or fish wheel. Currently under state regulations, any Alaska resident may fish for subsistence in the Yukon and Kuskokwim area using a gill net, seine or fish wheel.

-continued-

8. Prior to this survey had you heard about the proposed regulation change that would allow rod and reel to be used for subsistence fishing during open water in the lower Yukon/Kuskokwim area?

(circle one) Yes No

9. Please indicate your level of support for the proposed regulation change from 1 = strongly oppose to 5 = strongly support

(circle one) 1 2 3 4 5

Please explain: _____

10. If the proposal were to pass, would you expect your fishing with a rod and reel in the lower Yukon/Kuskokwim area to change?

(circle one) Yes No

- a. If YES where would you spend more or less time fishing and for what kind of fish?

Fishing Site	Fishing Time More Less	Specific Kind of Salmon or Other Type of Fish
Aniak	— —	
Goodnews	— —	
Kanektok	— —	
Kisaralik	— —	
Kuskokwim	— —	
Kwethluk	— —	
Holitna	— —	
Yukon	— —	
Other _____	— —	

11. If the proposed regulation is adopted, do you expect that you would continue to buy a sport fish license?

(circle one) Yes No

12. In 1998 did you buy a king salmon stamp?

(circle one) Yes No

- a. If YES: If the proposed regulation is adopted, would you continue to buy a king salmon stamp? (circle one) Yes No

13. If the rod and reel subsistence proposal goes into effect, how will this affect your fishing experience for the year:

(circle one) Positive Negative No Change

Please explain your answer: _____

Section III. These last few questions will help compare respondents to the general population. All of your responses are completely confidential.

14. What is your age: ____ Years

15. Are you: ☐ male ☐ female

16. What is your cultural background? ☐ Alaska native ☐ Other

17. How many years of formal schooling (elementary, high school, college, voc. tech) have you attended? ____ years

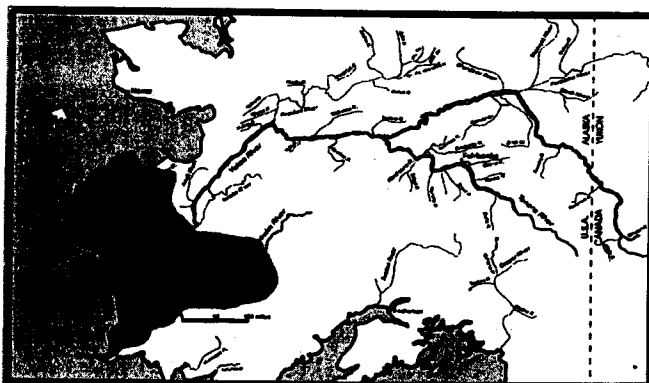
18. How many people are in your household? ____ people

19. Please circle your household's income before taxes for 1998:

- | | |
|-------------------------|--------------------------|
| 1. Less than \$20,000 | 4. \$70,000 to \$79,999 |
| 2. \$20,000 to \$39,999 | 5. \$80,000 to \$124,999 |
| 3. \$40,000 to \$69,999 | 6. Over \$125,000 |

Thanks very much for your help! Is there anything else you would like to tell us about the proposed regulation change or sport fishing in Alaska?

Survey of Rod & Reel Fishing in the Lower Yukon/Kuskokwim Area (shaded on map)



Alaska Department of Fish and Game
Division of Sport Fish

1999

The purposes of this survey are to collect information on rod and reel fishing in the lower Yukon and Kuskokwim area, and to obtain your opinions about a proposed change in state fishing regulations to allow subsistence fishing with rod and reel in the lower Yukon and Kuskokwim area. The study is being done by the Division of Sport Fisheries of the Alaska Department of Fish and Game. Findings will be presented to the Alaska Board of Fisheries in October, 1999. The survey should take about 15 minutes to fill out. Your participation is confidential-no names of participants will appear in any findings.

Section I. This section asks about your general sport fishing experiences, and for your opinions regarding your fishing experiences.

1. In general, how many years have you been sport fishing? ____ years
2. On average about how many days per year do you spend sport fishing? ____ days
3. Please indicate how important (circle a number) each of the following are as a reason for you to go fishing where 1 = not important and 5 = very important.

Fishing Experience	Not Important		Very Important		
Catch and release fish	1	2	3	4	5
Catch a few fish to eat	1	2	3	4	5
Catch enough fish to preserve and eat later	1	2	3	4	5
Experience wilderness solitude	1	2	3	4	5
Be with family or friends	1	2	3	4	5
The challenge	1	2	3	4	5
Catch trophy-size fish	1	2	3	4	5
Recreation	1	2	3	4	5

4. How many times have you traveled to Alaska and sport fished?

_____ number of fishing trips to Alaska.

5. How many of these trips have been to rivers or lakes in the lower Yukon/Kuskokwim area? (see map on survey cover)

_____ number of fishing trips to the lower Yukon/Kuskokwim area.

6. Please indicate locations in the lower Yukon/Kuskokwim area where you most frequently fish and the kind of fish you fish for. (The map on the back of the letter enclosed with this survey shows the location of specific waters).

Fishing Site	Fished? Yes No	Specific Kind of Salmon or Other type of Fish
Aniak	____	
Goodnews	____	
Kanektok	____	
Kisaralik	____	
Kuskokwim	____	
Kwethluk	____	
Holitna	____	
Yukon	____	
Other _____	____	

Section II. This section asks your opinions about the proposed change in state fishing regulations.

The Alaska Board of Fisheries has received a proposal that would change state regulations to allow the use of rod and reel for subsistence fishing in the lower Yukon and Kuskokwim area during summer. Currently, state regulations prohibit this. One implication of the proposal is that it would allow any Alaska resident to fish for subsistence with rod and reel in the lower Yukon and Kuskokwim area. A sport fishing license or king salmon stamp would not be required to use rod and reel for subsistence fishing. Under state regulations, subsistence fishing means the taking of fish for customary and traditional uses by an Alaska resident with gill net, seine or fish wheel. Currently under state regulations, any Alaska resident may fish for subsistence in the Yukon and Kuskokwim area using a gillnet, seine or fish wheel.

7. Prior to this survey, had you heard about the proposed regulation change that would allow rod and reel to be used for subsistence fishing during open water in the lower Yukon/Kuskokwim area?

(circle one) *Yes* *No*

8. Please indicate your level of support for the proposed regulation change from 1 = strongly oppose to 5 = strongly support:

(circle one) 1 2 3 4 5

Please explain: _____

9. Have you encountered subsistence fishers on your previous trips to the lower Yukon/Kuskokwim area?

(circle one) *Yes* *No* *Not Sure*

10. On any of your previous fishing trips to the lower Yukon/Kuskokwim area have you experienced crowded fishing conditions?

(circle one) *Yes* *No*

11. Do you have any specific plans at present to travel to the lower Yukon/Kuskokwim area to sport fish?

(circle one) *Yes* *No*

12. If the proposed regulation is adopted, do you expect that this would affect your decision to travel to the lower Yukon/Kuskokwim area as a sport fishing destination in the future?

(circle one) *Yes* *No*

- a. If YES, would you take more or less trips? (circle one)

more trips *less trips*

13. If the rod and reel subsistence proposal goes into effect, what do you generally feel this regulation will have on your fishing experience for the year:

(circle one) *Positive* *Negative* *No Change*

Please explain your answer: _____

Section III. These last few questions will help compare respondents to the general population. All of your responses are completely confidential.

14. What is your age: _____ Years

15. Are you: ☐ male ☐ female

16. How many years of formal schooling (elementary, high school, college, voc. tech) have you attended? _____ years

17. How many people are in your household? _____ people

18. Please circle your household's income before taxes for 1998:

- | | |
|-------------------------|--------------------------|
| 1. Less than \$20,000 | 4. \$70,000 to \$79,999 |
| 2. \$20,000 to \$39,999 | 5. \$80,000 to \$124,999 |
| 3. \$40,000 to \$69,999 | 6. Over \$125,000 |

One more question – next page please

Thanks very much for your help! Is there anything else you would like to tell us about the proposed regulation change or sport fishing in Alaska?

Appendix A4.-Survey letters.

Dear Alaska sport fish license holder:

Recently the Alaska Board of Fisheries was asked to consider a regulation change concerning fishing in the lower Yukon-Kuskokwim drainages (see enclosed map). The Board was asked to repeal the summertime prohibition on the use of hook and line attached to a rod or pole for subsistence fishing in the lower Yukon-Kuskokwim area. The change was requested because at present subsistence users in this area cannot legally harvest fish with rod and reel during the open water season under state subsistence regulations.

One implication of the proposed change is that not only would it be legal for any resident of the lower Yukon-Kuskokwim area to fish with rod and reel under subsistence regulations in the area, but any Alaska resident could participate. This means that it would also be legal for Alaska residents living in urban areas (such as Anchorage) to fish with rod and reel under subsistence regulations on state lands/waters in the lower Yukon-Kuskokwim area (but not federal lands/waters).

To inform their decision on this issue, the Board would like to obtain your opinion on the proposed change. Your name was randomly drawn as a previous holder of a sport fishing license. We would appreciate it very much if you could take the time to fill out the enclosed survey and return it in the postage-paid envelope (also enclosed). The results are completely confidential and your name will not be associated with any of your responses. For our study to be scientifically valid, it is important that we obtain your completed survey.

Thanks very much for your help. If you have any questions about this survey, please call me at (907) 459-7296.

Sincerely,

M. Merritt, Ph.D.
Research Supervisor

-continued-

Dear Angler,

Three weeks ago, we sent you a survey concerning rod and reel subsistence fishing in the Yukon-Kuskokwim delta area of Alaska. If you have not returned the survey, we ask that you do so as soon as possible. If you have already returned the survey, thanks very much for your help!

M. Merritt, Ph.D.
ADF&G/Sport Fish Division
1300 College Road, Fairbanks, AK 99701

-continued-

Appendix A4.-Page 3 of 3.

Dear Alaska sport fish license holder:

In July we sent you a survey concerning subsistence fishing with a rod and reel in the lower Yukon-Kuskokwim drainages (see enclosed map). The Board was asked to repeal the summertime prohibition on the use of hook and line attached to a rod or pole for subsistence fishing in the lower Yukon-Kuskokwim area. The change was requested because at present subsistence users in this area cannot legally harvest fish with rod and reel during the open water season under state subsistence regulations.

One implication of the proposed change is that not only would it be legal for any resident of the lower Yukon-Kuskokwim area to fish with rod and reel under subsistence regulations in the area, but any Alaska resident could participate. This means that it would also be legal for Alaska residents living in urban areas (such as Anchorage) to fish with rod and reel under subsistence regulations on state lands/waters in the lower Yukon-Kuskokwim area (but not federal lands/waters).

To inform their decision on this issue, the Board would like to obtain your opinion on the proposed change. Your name was randomly drawn as a previous holder of a sport fishing license. We would appreciate it very much if you could take the time to fill out the enclosed survey and return it in the postage-paid envelope (also enclosed). The results are completely confidential and your name will not be associated with any of your responses. For our study to be scientifically valid, it is important that we obtain your completed survey. If you have already returned the survey, thank you.

If you have any questions about this survey, please call me at (907) 459-7296.

Sincerely,

M. Merritt, Ph.D.
Research Supervisor

APPENDIX B

Appendix B.-Summary of opinions in letters by respondents to the survey for use of rod and reel for subsistence fishing, 1999.

Topic	Population	Comments
Rod & reel use	Local	I don't sport fish – I only do fishing with nets.
Rod & reel use	Local	I don't sport fish – elders say not to use hooks because hooks poison wound in the fish.
Rod & reel use	Local	<p>Local use of rod and reel became popular in mid 1970's in lower Kuskokwim rivers. Since there is not a "long-established, consistent pattern of use, incorporating beliefs and customs which have been transmitted from generation to generation" rod and reel does not fit the description of customary and traditional use necessary to be considered a subsistence method.</p> <p>"Use of rod and reel for fishing for many Yu'pik is incidental to camping, berrypicking and hunting to provide fresh food."</p> <p>"Yu'pik people really enjoy fishing with rod and reel."</p> <p>Rod and reel brings effectiveness and efficiency in catching fish – this may have caused some populations such as rainbow trout to decline in the Kwethluk and Kisaralik rivers. Rod and reel may also have some detrimental effect on spawning king and chum salmon in those same rivers. "In the 1980's and up to today, in one 4th of July weekend I counted 18 boats with 5 people each on the Kisaralik River."</p> <p>I am not in favor of establishing regulations for rod and reel fishing as subsistence for reasons outlined above. Whether rod and reel becomes subsistence or not, I will continue to buy a sport fishing license and a king salmon stamp and abide by regulations.</p>
Catch & release	Non-resident	Encourage catch & release in trophy waters.
License fees	Non-resident	Increase license fee for those wishing to harvest, versus those wishing to just catch & release.
Permits	Non-resident	Control participation (crowding) using permit system to preserve the wilderness experience.
Economics	Non-resident	What's more important to local area-tourism or subsistence fishing with rod and reel on declining salmon runs?